Compliance with the private standards and capacity building of national institutions under globalization: new agendas for developing countries?

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ABSTRACT

There are two assumptions regarding regulatory instruments under the globalizing economy. These are: (1) increasing role of private standards in shaping the economic activities of developing countries; and (2) diminishing role of national institutions in "open" and "liberal" markets. In other words it was considered that global private standards would eventually replace already weak or absent national and local institutions in developing countries. The purpose of our paper is to suggest an alternative interpretation to this widely held view about national regulations and institutions in developing countries under the 'new standard regime' in the food and agricultural sector where the regulatory framework is traditionally stronger at national level.

The role of national regulatory institutions is considered to diminish as the countries compete in the "open" and "liberal" global market since firms are obliged to comply with global private standards. Instead, we have observed cases in developing countries which demonstrate an opposite phenomenon. In these cases, the local and national institutional capacity had actually being enhanced through learning in the "open" and "liberal" market at global level. In other words, we discovered that while the global (private) standards intend to control and shape the economic activities in developing countries through value chains, the local institutions also were transformed in a co-evolutionary manner to sustain the viability of existing local economic activities.

This paper hence tries to illustrate our argument with cases from developing countries to demonstrate how the process of adapting to survive in the 'new regime'—compliance to global (private) standards—may have positive impacts on national and local institutions. Moreover, we intend to highlight some common features of transitions which are taking place in regulatory frameworks within the context of a global 'new standards regime' (public-private regulations).

We will discuss the following cases of standards compliance and their impacts on enhancement of national and local capabilities: (1) the salmon farming industry in Chile, (2) and the fresh agricultural products in Mexico. These cases illustrate the complex interactions between global standards (both private and public-private) and national and local institutions. As the cases are slightly different, the comparison brings about interesting dimensions in illustrating institutional capacity building 'trajectories' from both private and non-private standards.

Keywords: Standards, Role of National Institutions, Capacity Building, Latin America, Agri-food
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1. Introduction

Through global integration, developing countries are increasingly being incorporated into the global chain of production. Under such process, the agro-food production system has drastically transformed to attain economic efficiency through applying uniform criteria for product to take advantage on integration of production system across the borders while accommodating diverse market preferences through differentiations. In this context, the use of global standards has increased and transformed from conventional ways of ensuring minimum standards for food safety and quality at national level to the coordination tool for global food production system as well as the means of product differentiation (such as organic, fair trade, socially responsible to name a few).

The use of standards can promote global integration through ensuring uniform level of standards in quality while marking the differences among products in global market. In such dichotomous process, the role of national institutions—which conventionally acted as the independent regulators, promoters and developers of standards and regulations at national level—comes under scrutiny of global market. This follows the argument of scholars from various social sciences (Giddens, 1990, Lipsey, 1997, Held et al, 1999, Stiglitz, 2003) which state that globalization puts national policy and regulations under external forces such as foreign policy and international pressures in meeting—not national—but the global needs. This makes it difficult for a single state, particularly those in development, to have meaningful regulatory control over its domestic affaires. On one extreme, it is possible to argue that government in developing countries will no longer regulate, promote and develop standards and regulations as they simply come under the global governance.

Despite possible averse effect on regulatory autonomy in developing countries, the use of global standards can facilitate finding the right trajectories for development and innovation to enhance competitiveness and can offer learning opportunities through acquiring knowledge in 'packaged' or 'codified' form for the catching up countries. This would allow these states to allocate their limited resources directly into new activities suited for present day context of global economy. In fact, recent studies have illustrated how innovation process has transformed into multi-stakeholder activities which require to *exploit systematically existing knowledge by constructing new uses and devising fresh combinations* (Teubal et al, 1996). These imply the reliance on existing global standards as an efficient step towards freeing institutional capacity towards systematic coordination, integration and search of existing knowledge to contribute an innovation process, a *Neue Kombination*, using the term by Schumpeter.

The grasping the current situation on standards compliance, particularly in relation to the national institutions, would offer new insight in understanding how the certain industries in developing countries could be able to build up their capabilities as they are integrated into the global production network. It is; therefore, important for developing countries to look at the issue of standards compliance not only as a short term clearance to enter the global market but as a long term strategic solution to enhance local capabilities. It is often considered that on global private standards such as ISOs, developing countries are on losing ground due to their limited resources and knowledge (Clapp, 1998); however, emerging understanding suggests that systematic use of existing standards may create new space—niche—for capacity enhancements. Here in our paper, we will try to answer the question, **"How did compliance with private standards enhance capacity of local and national institutions?"** through looking at the case studies of food and agriculture products in Mexico and Chile.

2. Theoretical discussion

2.1. New functions of standards in globalizing economy

In general, standards support both conformity and diversity: they act as "external points of reference" (Hawkins, 1995: 1) for assessing the performance, quality and physical characteristics of products or services. Standards perform four broad types of functions to define: (1) interfaces and compatibility; (2) minimum quality; (3) achieving reduction of variety; and (4) standards of information and production description (Swann,1999: 12) and these functions are conventionally a part of the "set of rules" determined by the public sector. In agro-food sector, standards were conventionally established and used by the public sector to mark the minimum quality and sanitation to facilitate the exchange of commodities while ensuring the public safety.

The use of standards in agro-food systems has been extended in the present context. Unlike the conventional ways to ensure minimum standards for food safety and quality for promoting scale and homogeneity of products, standards are increasingly used for the purpose of differentiation in promoting scope of products. Furthermore, private standards are being used to coordinate complex production processes that go beyond national boundaries at 'arms'-length' and growing prevalence of these private standards convert these into *de facto* norm in international trade. In such context, it became evident that private sector has a much bigger role in deciding the content of standards compared to that in the past (Cutler et al., 1999). In fact, standards are increasingly being set by supranational bodies such as EU, private entities such as ISO or NGOs such as Forestry Stewardship Council (FSC), monitored and executed by different private entities, the role of regulatory institutions at national level would eventually diminish. This trend is considered irreversible since firms seeking global acceptance for their products see compliance with internationally well accepted standards inevitable to bypass unnecessary auditing from business partners as well as from potential buyers.

Kaplinsky and Morris (2001), from the perspective of global value chain, pointed out an emerging feature of global private standards such as ISOs and HACCPs in relation to governance. They claimed that in global era, increasing use of global private standards would overwhelm the regulative function of national and/or local governments. Kaplinsky and Morris (2001) stated that the increased use of global private standards assigned different governance powers—legislative (rule-setting), executive (assisting/diffusion) and judicial (monitoring)—to different private entities. For instance, in case of ISO standards, the legislative power belongs to Committee of ISOs which sets the standards, the executive power rests within consultancies or other organizations with knowledge on the standards and the judicial power rests within auditing firms which monitor the firms in certification process. These observations were focused on private sectors; therefore, there were little coverage on the transformation in the role of national institutions in their studies.

A number of existing literature suggest that the issue of private standards follows the line of arguments made by Giddens (1990) and Held et al (1999), who viewed globalization process as spread of superterriotriality. They stated that globalization intensified social relations and "link distant locality in such a way that local happenings are shaped by event occurring many miles away and vice versa" (Giddens, 1990:64). Lipsey (1997) also states that there is allocation or transfer of the power of national government upward to supranational bodies (i.e WTO, GATT, EU, NAFTA etc) and others downwards to more local levels of government. Stigliz (2003) discusses the diminishing economic role of national institutions under globalization to make the financial system more integrated. Wolf (2001) gives the practical example from financial area mentioning the impossibility of controlling the taxation by a single government since people are increasingly purchasing products in other country via internet to avoid paying taxes. Furthermore, when discussing competitive supragovernmantal regulation such as global

private standards, Meidinger (2008:526) discusses the potential of such superagovermental force falling into imperial claim: "activists from wealthy countries threaten to get their consumers to boycott commodities that do not meet their standards, thus forcing producers in developing countries to conform to developed country standards". The influence of global standards are especially extensive for the agrifood sector due to the increasing enforcement of traceability which made production and processing stage that takes place in developing countries, the subject of control.

In fact, Clapp (1998), based on the case of ISO14000, claimed that implementation of such private-led standards can be disadvantageous to developing countries, which lack financial and political power in effectively influencing the determination of the contents of the standards. Other studies mention that the use of standards transforms the industrial structure due to such unequal power relationships. For instance, Blind (2002) demonstrated that standardization would increase the concentration of industry with his analysis of data from 19 sectors. Bains, Deaton and Busch (2005) identified impacts caused by both public (WTO) and private standards on agro-food production in developing countries. They claim that current agro-food system can be politically shaped through controlling the standards. These literatures suggest that increase in use of global private standards may have long term detrimental effect for the future capacity and independence of industry and governance capacity in developing countries.

2.2. Impact of global private standards on national regulatory bodies

The previous view can lead to believe that the regulatory function of national institutions in developing countries would eventually be replaced by the global ones as the industry is integrated globally with use of private standards. It is true that as much of the Southern countries lack stringent regulations at national level so these international standards often complement much needed regulatory institutions (Tallontire, 2007). In fact, global value chain literature provide case studies that illustrate how global buyers coordinate fragmented governance power structure to deliver necessary products at 'arms' length' from developing countries (Dolan and Humphrey, 2000; Nadvi and Waltrang, 2004; Giovannucci and Ponte, 2005).

While the increased use of standards in developed countries carries *negative impacts* to governance capacity in developing countries' regulatory sphere, several studies on use of standards consider that their use may create *dynamic* and *positive impacts to national and local institutions*. These studies point out the following points. *First*, global private standards can signal trajectories for future regulation for various stakeholders. Although it is a reactive strategy, when the stakeholders do not have to search for the right direction, they can allocate only sufficient resources to compliance (Buysse & Verbeke, 2003: 460).

Second, global private standards can enhance *learning activities* through interaction. Fulponi (2006) suggests the potential learning opportunity from standards for suppliers in both developed and developing countries through global interactions. Moreover, study by Unnevehr (1996) identifies that adapting to global private standards requires the action that goes beyond simple copying. His study on adaptation to supposedly generic process standards (HACCP) demonstrates that compliance actually required deep knowledge and understanding on the specificity of the sector (Unnevehr, 1996). In other words, it is possible to say that standards compliance stimulates interactive learning and contributes to further systemic change at different levels.

Third, the compliance to standards may enhance the capacity to *act collectively* among stakeholders to build the common platform. The act of compliance to standards is not the solitary act by a single firm but it requires collaboration among various stakeholders (Iizuka, forthcoming in 2009). It is also possible to consider standards compliance as the replication of codified organizational knowledge in the form of Template (know-how) as opposed to the Principle (know-why), following the literature on replication of

organizational knowledge (Jensen and Szulanski, 2007, Banden-Fuller and Winter, 2007, Szulanski and Jensen, 2008). The existing research results based on the study of franchising demonstrated that faithfully copying to Template have successful performance at the beginning stage of learning process than adapting to Principles. In other words the compliance to standards—more codified version of Template—can considered as an efficient model of learning organizational knowledge.

Fourth, though these standards promote harmonization of procedure or production process, these also allow the diversity at the local site. Many emerging private standards associated with agricultural products are intended to reflect improvement in environmental and social welfare (child labour, labour conditions in general etc) at the production site. Higher compliance and leadership in the regulatory aim requires more stakeholders' involvement and resources allocation in manufacturing technologies, employee skills, organisational competencies, formal systems and procedures, and strategic planning reconfigurations (Buysse & Verbeke, 2003). To meet the fundamental goal of these standards; therefore, *requires long-term and in situ—or local— and diversified solutions* (Katz, 2006). In other words, while the standardization may require uniform outcome—the compliance—the way in which stakeholders achieve the outcome are diverse.

Fifth, the standards and certifications allow consumers to express their environmental and ethical concerns through acts of purchasing (Raynolds, 2004; Tallontire, 2007; MacDonald, 2007; Blowfield 2007; Utting, 2007) thereby *extending the participation of consumers in governing process*.

Likewise, for regulations and standards to be named as public or private it is necessary to know who legislates them, who executes them, and who monitors and enforce them. If the process in whole is done by public entities, it is assumed to be a public standard/regulation; if it is done by private parties, it is assumed to be a private standard/regulation; but if some parts of the process (legislation, execution, or monitoring) are done by public and other parts by private parties, it is assumed to be a public-private partnership. The new standards/regulatory regime lifts the static view for a more dynamic one, where the State and the private collaborate in one or more of the regulatory functions at global, national and local levels.

The dynamic nature of this impact has often been studied focusing on firm level (Dolan and Humphrey, 2000, Perez-Aleman, 2002, Quadros, 2002, Nadvi and Waltrang, 2004) except for a few that focused on institutional aspects of industrial associations (Perez-Aleman, 2002, Nadvia and Waltrang, 2004). The transformation process of national institutions, as they interact with global economy, is not yet well documented.

The issue of standards in the agro-food sector is of especially great concern for the developing countries. This is because agricultural and food products comprise greater proportion of exports in many developing countries with particular growth in fresh and minimally processed export products in recent years (Reardron et al, 2001). Moreover, agricultural standards have triggered important contributions to the historical discussion on commodity trap (Singer, 1950, Prebisch, 1963) by creating new market opportunities and value added through product differentiation.

3. Methodology

This paper aims to illustrate the transient feature of role of national institutions as the industry gain its local capabilities in course of global integration. We try to do this by focusing on the standards compliance process and how both public and private institutions are involved in this process.

Our research question is: **"How did compliance with private standards enhance capacity of local and national institutions?"** We are going look at two rather successful Latin American cases on agrifood industry with reference to standards compliance. These are: Case of Chilean farmed salmon and Case of Mexican vegetables.

These two country cases are complementary. Chilean case looks at chronologically different cases of compliance to illustrate the changes in the way the public and private institutions interact while Mexican case looks at different ways in which public and private sectors confronting the challenges on standards in snapshot. To compare in total of four cases in two countries, common framework to look at the role of national institutions was adopted based on Kaplinsky and Morris (2000). They distinguish governance powers into legislative (rule-setting), executive (assisting/diffusion) and judicial (monitoring/enforcing). In the case studies, as we describe these cases, we will attempt to identify "who" is playing "what" role so that overall picture of institutional role of state will be apparent.

Both case studies are constructed with the secondary and qualitative data collected during the fieldwork. The case of salmon is based on interviews, surveys and secondary data obtained from the fieldwork conducted in March-May 2004 in Chile with various institutions related to the salmon farming industry from the public sector, private sector and civil society as well as surveys from the firms. The 46 open-ended semi structured interviews to related stakeholders and 62 semi-structured firm-level surveys are conducted in order to explore the complexity of transitions in the way government is involved in this process. The other supplementary information on national institutions was collected through document and web sites. The case of Mexican fresh agricultural product also follows a qualitative approach, using open-ended and semi-structured interviews as well as questionnaires applied to firms and industry associations CEO's; secondary sources of information were also used. Data gathering took place from November 2007 to April 2008. Again, these cases are studied to show how organization and institutions respectively enhanced their capacity in their attempts to comply with international private standards for food safety.

4. Chilean salmon farming industry

4.1. Background to the industry

The salmon industry in Southern Chile represents a natural-resource based industry, which has demonstrated strong export growth since its establishment in the mid-1980s. In 2006, this industry exported approximately 628,000 tons (round and estimate) and earned $US 2 billion, making it a top exporter of farmed salmon in the world after Norway (SalmonChile, 2007). The Chilean contribution to the world supply of salmon has increased tremendously in the past 10 years (Figure 1). As earlier, farmed salmon increased it share against extractive one and currently it has 70% of total production in the market, of which, the half, 35%, is produced in Chile.

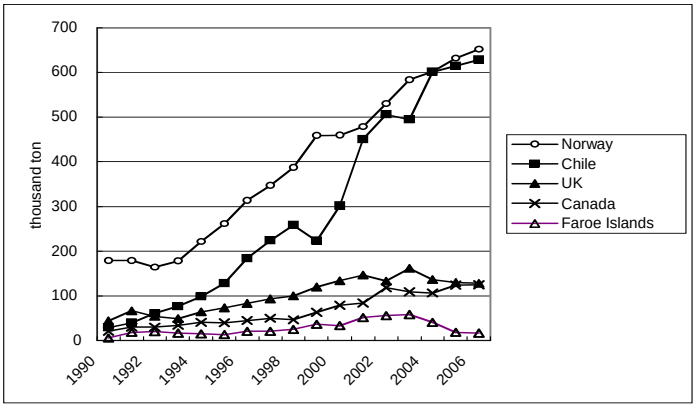


Figure 1: Main exports of farmed salmon and trout, 1990-2007
Source: Salmon Chile, 2007

The salmon farming industry shares some aspects of the characteristics of many non-traditional natural-resource based industries in the Latin American region. The growth of the salmon industry followed a typical tendency of Latin American firms as mentioned in the work of Cimoli and Katz (2003) – an increase in the concentration of larger firms, capital intensity of its production, and foreign ownership. However, at the same time, many studies (e.g. Montero et al., 2000; Katz, 2006; Montero, 2004; Pietrobelli and Rabellotti, 2004) have recognised the strong development of a local production network or cluster in the industry to underpin its success. It is needless to mention that farmed salmon is one of non-traditional exports flourished under the Chilean liberal trade policy and promotion in diversification on export products.

Currently, almost 100 % of salmon are exported from Chile as this product was originally promoted for export. During the 1990s, 50% of products in value terms were exported to Japan; currently exports in 2006 are more diversified to US (41%), Japan (41%), Europe (5%), Latin America (6%) and others (7%).

The industry now includes diverse participants from the private, and public sectors at global, national and local level. The actors in the private sector expanded as the salmon clusters were consolidated. Inclusion of a diverse array of actors both at local and global level and increased scale of production made the regulatory system a complex one. This is particularly true in the 2000s as firms increasingly needed to meet both local and global requirements. Here, two cases from different time periods are examined to demonstrate how the local regulatory system increased its complexity and evolved over time as the industry integrated globally.

4.2. Regulatory framework of salmon farming industry in Chile

Currently, there are several institutions involved in regulating the salmon farming industry. The way in which these institutions interact increasingly became complex due to the expansion and extension of the industrial structure.The main sectoral regulating body for the salmon industry is the Undersecretary of Fishery (Subsecretaria de Pesca) and the National Fishery Service (SERNAPESCA). These institutions have belonged to the Ministry of Economy since 1976. As regards to the salmon farming industry, the Undersecretary of Fishery set rules for export purposes through adapting international regulations for local and sectoral contexts, obtaining information on sanitary regulations from the government of market destinations and acting as national guarantor on the products elaborated by the firms that are certified with their standards. The National Fishery Service acts as the operating arm of the Undersecretary of Fishery. It monitors firms, certifies the laboratories that examine the firms, enforce certification and grant certification to the firm in case of compliance. In the process of monitoring, the National Fishery Service also promotes their standards through training and technical advice. The Undersecretary of Fishery also participates in the negotiation of regulatory matters both at bilateral and multilateral trade agreements (such as FTA and APEC).

There are several institutions that operate under national regulations. Although these institutions do not directly interact with nor address global private standards, the trajectory of national regulations is increasingly aligned to what is happening in the global context, due to the fact that a major proportion of the salmon is exported to developed markets. For instance, the Agriculture and Livestock Service (SAG: Servicio Agricola Ganadero), which belongs to the Ministry of Agriculture, regulates the chemicals used in fish rearing (such as vaccines) and fish feed. These are essentially national regulations; however, due to the implementation of traceability, the global requirements are increasingly being reflected at the national level.

Another important feature of the current regulatory framework is complexity at the local level. For instance, for a salmon processing plant to continue its operation, the plants will be regulated by the Superintendent of Health and Sanitation Service (SISS) for discharged water, sewage and effluence inland, while the Maritime Authority, the institution belonging to the Chilean Navy, deals with the

discharged water into the sea and the National Fishery service deals with fish related diseases, yet the use of chemicals for fish and fishfeed is controlled by the Agriculture and Livestock Service. The increasing complexity in regulations and institutions involved as well as the presence of numerous small scale suppliers also complicates the enforcement of these rules at the local level while the traceability requirement at the global level increasingly demands provision of information for suppliers on their compliance with environmental and sanitary regulations.

Another feature of the current regulatory framework in Chile is the increased use of public-private consultative bodies. For instance the National Council for Cleaner Production started as a private-public committee to agree upon a scheme to facilitate effective compliance to environmental regulations in 2000. The scheme consists of an agreement between groups from the public and private sectors (groups of firms in a particular sector) on environmental goals to complete within a certain period (usually 1-2 years). In the case of the salmon industry, the agreement was made between a public sector group and the Association of Salmon Industry (SalmonChile) at the regional level. Compliance to this agreement later became a standard called APL (Acuerdos de Produccion Limpia) created by the National Institute of Norms (INN).

The National Institute of Norms (INN: Instituto Nacional de Normas) is an organization that elaborates technical norms in Chile. Its works are mainly divided into five: establishing norms based on the Chilean context, monitoring firms, certifying laboratories for evaluation, establishing methodologies, and providing training on certification and integrated management. INN is an international member of ISO and its laboratory is accredited for such work. This institution used to belong to the public sector but it became independent. Funding usually come from their certification, accreditation, and training functions. As the case of APL demonstrates, it is possible to say that INN legitimized Chilean local standards at a global level.

4.3. National institutional capacity building

4.3.1. The case of sanitation and quality standards for salmon industry in the late 1980s.

The first attempt to create standards in the Chilean salmon industry took place as early as the late 1980s. At this time Chilean salmon firms were increasing their exports to global market competing against more well known producers of Canada, Norway and Scotland. Due to the intense competition, the necessity to differentiate good Chilean products from inferior one through means of ‘quality seal’ to maintain stable quality of Chilean salmon became increasingly evident for the producers (Carlos Wurmann [expert on Chilean aquaculture], interview June 14, 2004). The Association for Producers for Salmon and Trout in Chile (APSTC later it became Association of Salmon Industry: SalmonChile) was established at this time, in 1986, to meet this challenge. The Association, with technical cooperation from FundacionChile, a privately run institution with the public purpose of promoting technological transfer, created a standard for a ‘quality seal’ (sello de calidad) through identifying elements to be included to ensure the quality of salmon. Parallel to this private initiative, the Undersecretary of Fishery also developed the (POS-Procedimiento Operacion de Saneamiento) for salmon industry, based on the international standard, 'Sanitary Standards Operation Procedure (SSOP)'. SSOP is a standard that comprises part of the Hazard Analysis and Critical Control Point (HACCP). The Undersecretary of Fishery later created a standard called PAC (Program for Assurance of Quality), which is based on HACCP and made compliance obligatory for those firms who wished to export. As the public sector was able to legitimize and guarantee the quality better to the market destination government, the association’s ‘quality seal’ phased out giving way to PAC.

HACCP, Hazard Analysis and Critical Control Point, is a production control system for the food industry. It is a process that identifies where potential contamination can occur (the critical control points or CCPs) and strictly manages and monitors these points as a way of ensuring the process is in control and that the

safest product possible is being produced. HACCP is designed to prevent rather than catch potential hazards.

Undersecretary of Fishery took the lead in incorporating the most stringent version of standards for export destination countries as well as standards in bilateral agreements to the HACCP for the salmon industry in Chile. The Undersecretary of Fishery collected necessary information on sanitation for exported salmon which consists of all the regulations for main export markets (Japan, US and Europe), international standards produced by FAO and made one standard—common denominator—that all the firms need to comply with to export anywhere. The National Fishery Service on the other hand, operated as the executive branch of Undersecretary of Fishery through certify the auditing laboratories that inspect the firms and certifying the standards so that the products can be exported without major incidents that would undermine the reputation of quality and safety of Chilean salmon.

In the early period when salmon farming firms were entering and growing in the global market, the public sector acted as an information channel, an inspector of producers and a guarantor. The retrospective interview results seem to suggest that the regulation making process during this period were more based on 'copy and paste' methods (Estrazer, Paula [Maritime Authority], Interview, May 19, 2004) from already existing standards from international organization as well as from more technically advanced countries and monitoring processes which were more confrontational or 'top-down' than conversational with the private firms. The role of national institutions transformed in the 2000s as the global integration of salmon farming industry took place.

4.3.2. The case of environmental standards in the 2000s

In the 1990s and the 2000, the presence of Chilean salmon industry became prominent both at local and global levels. Increase in production corresponded with increase in environmental impact in form of solid and industrial waste, discharged water, oil spillage, alteration of natural habitats for sea mammals, biodiversity and scenic beauty. It was difficult for a firm to deal with them all because these issues belonged to the jurisdiction of different public entities at local and national levels. Moreover, the provision of national regulation also became important for the government as well as the exporting industry due to the negotiation process of bilateral trade agreements and increasing fear for dumping accusations based on environmental reasons (Eco dumping). Under such circumstances, many sector specific environmental regulations were established during the 2000s with close collaboration with private sectors. The participation of the private sector in deciding regulation made the relationship between local regulation and global standards increasingly co-evolutional, making these two levels increasingly interwoven and intertwined.

For instance, specific regulations for the aquaculture sector are established in the 2000s with close collaboration from the private sector. In 2001, the Undersecretary of Fishery, Ministry of Economics issued Environmental Regulations for Aquaculture (DS No.320: RAMA). In January 2002, regulations of measures for protection, control and eradication of Diseases of High Risk for Hydrobiological Species, also known as the Sanitation Regulation (RESA), came into effect. Despite the fact that the above regulation was set as the Chilean regulation, much of these were based on existing regulations in Norway and Scotland and the effectiveness of this regulation in local settings is currently under the investigation by the research institution owned by the Association of salmon industry) (Jose Miguel Troncoso [INTESAL] Interview, Sept 3, 2003).

Another example for public-private collaboration is the establishment of a consultative body such as the Clean Production agreement by the National Council for Cleaner Production. This is a governmental scheme providing a common floor for a group of public regulators with a group of private firms working in the same areas to agree upon the target level and date to encourage cleaner and less contaminating way of industrial activities. In 2001, the salmon farming industry, headed by the association, participated in

this scheme; they made an agreement with a group of public institutions at the regional level. This agreement later became a national certificate, APL (cleaner production certification) issued by the INN and granted to those that met the initial agreement. Despite the fact that APL targeted and reflected national regulations and did not refer to the global standards, APL facilitated to differentiate complying firms from the rest. This became particularly important for small scale local suppliers that take part of exporting industry, because growing number of export markets required detailed and reliable information on suppliers for traceability requirement.

In addition to above public regulations, the ISO 14000 also became important for the Chilean salmon firms. Despite the growing importance of global markets, many firms were not able to obtain the international standards due to the high costs as well as the demanding capabilities involved. To resolve this problem, local standard was created by the Association of Salmon Industry (SalmonChile). This local standard attempts to differentiate firms with some intentions to comply from the others; at the same time, it tries to guide these firms to achieve compliance with the global standards. This local standard is called SIGes (Sistema Integrado de Gestion), and is the combination of sector specific standards such as APL as well as adapted international standards such as HACCPs, national regulation, RESA and REMA.

These local private standard, SIGes, had come to be the institution that bridged to the global standards. For instance in 2004, Wall-Mart accepted the SIGes as the acceptable procurement standards from Chile (SalmonChile 2007). Furthermore, in 2003, SalmonChile, together with association of Canadian and American producers, managed to incorporate SIGes into the SQF-SOTA, the standards shared among Association of Salmon Producers of America, the Salmon of Americas (SOTA)(SalmonChile, 2007).

The successful development of the Chilean salmon farming industry from the early 1990s to the 2000s was not without negative side effects. The rapid growth of this industry in terms of production volume and extension of its production process, made the impact even more far-reaching. The regulatory framework evolved with the development of industry and became increasingly collaborative between private and public sector. The private-public collaboration consequently spurred the incorporation of global standards into local regulations.

4.4. Reasons behind increasing collaborations on standards

The increasing need for various types of standards both by local and public sector seems ironic feature for global economy. The interviews with government officials revealed that communication and transparency of the production process are required at global market to prevent potential accusations from abroad and these standards and regulations became tools for communications. The legislation process, in the 2000s, increasingly became the outcome of private-public collaboration. The increased intensity of public and private collaboration is due to four reasons. First, the speed of progress and extensiveness of knowledge used in the private sector went beyond the capacity of the public sector to catch up through conventional method of enacting regulations (Estrazer, Paula [Maritime Authority], Interview, May 19, 2004). Second, it also became clear that due to local environmental conditions and the way in which the industry evolved, the solutions are no longer present in developed countries or international organization to be ‘copied’ in the local context (Rentamal [Expert National Fishery Service, Puerto Montt] Interview, March 9, 2004). A joint searching process is required between private and public sectors. Third, the national regulating body is well integrated in global regulatory trajectories. In the present HACCP or PAC is well integrated as the national standards that constitute the basis for ISO 9000, ISO 14000 and Good Manufacturing Practice (GMP) with continuous improvement as the ultimate goal (ibid. interview). Another words, the public sector is provided with a generic vision for the future trajectory of regulation but must put an effort to find the right path in adapting such concept at local the context. Fourth, several public initiatives, such as APL, provided good opportunities for public and private sectors to communicate. An environmental official expressed dissatisfaction with APL for the compliance level achieved by the firms; however, she

admits that there is no better way as there were no official communication channels between the public and private sector in terms of compliance and detection, and comprehension of reality was not easy as the industrial structure became a complex web of small scale suppliers (Sibel Villalobos [officer CONAMA 10th region] Interview May 12, 2004). Almost all of participants of APL from public institutions admit the benefit of communicating with private sector and some even mention further developments for more collaboration in policy (Mario Sanhueza [Sub-director, CONAMA, 10th region] Interview, May 12, 2004, Roberto Norambuena, [Undersecretary of Undersecretary for Fisheries, Valparaiso] Interview March 9, 2004).

In summary, the regulatory system and national institutions for the salmon industry co-evolved over the years. At the early stage of industry, there were not many regulations and the only regulations applied were standards that required for exports. For this purpose, initiatives were first taken by the private sector in setting up common quality standards to ensure quality for differentiation. This attempt by the private sector was soon taken up by the national authorities to guarantee and certify the standards, unifying the existing several standards, diffusing information and enforcement and monitoring for the exporting national salmon farmers. These standards of national institution were based on existing standards and regulations in technically advanced countries as well as international organizations. The involvement of public sector in standards legitimized private sectors' products to penetrate into the global market. As industry grew and increased its complexity with local specification, institutional innovation started to emerge at national level so that the global standards can be accommodated better in the local context. The role of national institutions started to become more like a coordinator of rapidly evolving regulations—in different ways—at both global and local levels. These regulations aimed at enhancing long-term competitiveness by equipping it with global level rules in local context with close collaboration between private and public bodies such as APL and SIGEs. In these local initiatives, national institutions are much more important in certifying and guaranteeing the product than actually enforcing and sanctioning. In sum, the regulatory framework for the Chilean salmon farming industry has transformed as the industry grew and became more globally integrated. The regulatory framework became increasingly: (1) *complex* due to including different activities run by different entities (such as suppliers); (2) *interlinked* at global-local level; and (3) *collaborative* between public-private sectors with various initiatives.

5. Mexican export-oriented fresh produce industry

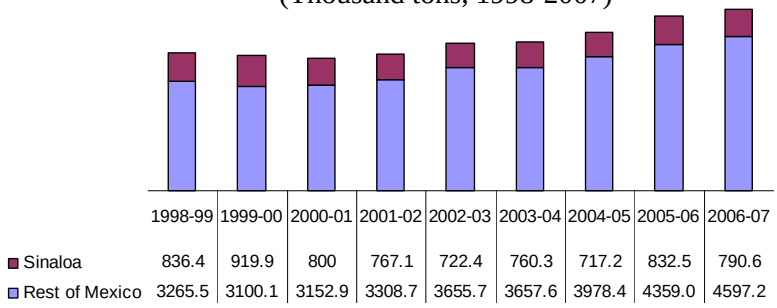
5.1. The industry and market at a glance

Understanding Mexican agrifood system for international markets requires paying particular attention to trade relationships between United States and Mexico. Although these countries are part of a long term North American integration, NAFTA was the opportunity to further their relations, increasing the intraregional trade share from 25% in 1989, to 40% in 1994, and 56% in 2003 (Borbon-Galvez, 2008, p. 2).

The production and exports of fresh produce in Mexico had grown in value, led mainly by growers from the northwest; especially the States of Sinaloa who invested strongly in vegetable production, and Sonora focused in fruit production (Stout et al., 2004, p. 42).

Sinaloa is the most important horticultural region in Latin America (Valenzuela-Ureta, 2003), with strong growers representation in Confederacion de Asociaciones Agricolas del Estado de Sinaloa (CAADES), embracing 10 associations for more than 7000 growers with over 2.1 million hectares (Wong-Gonzalez, 2005, p. 240).

Figure 2.- Mexico and Sinaloa fresh produce exports to United States
(Thousand tons, 1998-2007)



	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
Sinaloa	836.4	919.9	800	767.1	722.4	760.3	717.2	832.5	790.6
Rest of Mexico	3265.5	3100.1	3152.9	3308.7	3655.7	3657.6	3978.4	4359.0	4597.2

Source: CAADES/CIDH, http://www.cidh.org.mx

Mexican exports to the United States use cross-border operations throughout four main ports. The main port of entry for fresh produce to United States is Nogales, which crosses around 50% of the fresh produce exports value year-around.

5.2. Engagement with international standards for food safety

Normex was the first public normalisation and certification agency in Mexico, created more than 50 years ago, previously named Laboratorios Nacionales de Fomento Industrial (LANFI), and privatised in 1993.

In 1994 under NAFTA context, Mexico got involved in the first serious multilateral commission related to Sanitary and Phytosanitary (SPS) measures relying in international standards. The commission is based upon the Codex Alimentarius Commission, the International Office of Epizootics, the International Plant Protection Convention, and the North American Plant Protection Organization[1].

In 2002 the first national body (Mexico Calidad Suprema: MCS) was created to develop, promote, support and certify international food quality and safety standards across the Mexican food industry. Although this is a multi-governmental agency initiative, it is decentralised.
Nowadays, the official body responsible for regulating, certifying, inspecting and monitoring safety and quality for the agriculture and food industries in Mexico is “Servicio Nacional de Sanidad Inocuidad y Calidad Agroalimentaria” (SENASICA). This agency is adhered to the International Plant Protection Convention (IPPC), which is part of the Food and Agriculture Organization of the United Nations (FAO).

Mexican certifying bodies are not well known by buyers in the international markets, who require acknowledged and reliable independent international third party certifications bodies. Since 2000s, the main private agencies providing such services for Mexican growers are SCS (Scientific Certification Systems), Primuslabs and QMI SAI Global (Quality and Management Innovation & Supreme Audit Institutions Global).

5.3. Diffusion of International private standards through national/local institutions

There are myriad of organisation types relating for the provision of food safety and supply chain security standards. Relationships between local and national actors cut across the public and private boundaries. Although certifying bodies could be governmental, still require the expertise of private, NGOs, consultation bodies, or public and private R&D centres. The same occurs with private organisations, whom require the expertise and support of other type of institutions and organisations to provide their services and to diffuse international food safety standards.

[1] See NAFTA, part two, chapter seven on agriculture and sanitary and phytosanitary measures. www.nafta-sec-alena.org

Interdependency between governmental, private, R&D centres, NGOs, consultation bodies, and industry associations; for legislation (legitimating), execution (promotion and assisting), and enforcing[2] (monitoring) "voluntary" regulations/standards is characteristic of the new regime, where boundaries and division of labour between actors are rather unclear.

Diffusion of food safety and international quality standards in Mexico has not been straightforward. Certification is not achieved with simple certifying agency-firm interactions; it goes through a complex process whereby international certifying bodies look for the appropriate national and local agencies for accreditation as competent provider of standardisation and certification services. National accredited agencies make the state and industry aware of the need for compliance with international standards, certainly offering their certification services.

Accredited bodies require national and local (public and private) organisations in Mexico, namely research and development centres in agricultural, food and post-harvest science and technologist. Such international certifiers without agreements run the risk of supplying services at higher costs than other accredited bodies. Additionally, since national and local scientific research and development capacity is not in hands of private institutions in Mexico, international private certifying bodies need to engage with various non-private organisations and institutions types.

Table 1.- International standards, standard setters and organisations type in the Mexican agriculture and food industries

Standards	Definition	Standard Setter (Adapter)	Organisation type
GAP	Good Agricultural Practices	United States/Food and Drug Administration	State
GMP	Good Manufacturing Practices	United States/Food and Drug Administration	State
HACCP	Hazard Analysis and Critical Control Points	FDA US National Academy of Sciences US National Advisory Committee on Microbiological Criteria for Foods-NACMCF Codex Alimentarius Commission International Commission on Microbiological Specifications (SPS) for Foods	State Academia Public/Association/ R&D Public/International Public/International/ R&D
SENASICA	GAP+GMP+SPS+HACCP	Mexican Minister of Agriculture	State
MCS	Mexico Calidad Suprema: Quality, safety and microbiological control (SPS)	Mexican Minister of Agriculture, Mexican Minister of Economics, and Mexican International Trade Bank. (Decentralised)	State/Public/R&D/ Private
GlobalGap	GAP, environmental impacts, reduced use of chemical for worker health and safety as well as animal welfare.	GlobalGAP	Public/Association
SQF 1000, SQF 2000	GAP+HACCP+Safety and quality plans for growers (SQF 1000) GAP+HACCP+Safety and quality plans for manufacturers and distributors (SQF 2000)	SQF Institute/Food Marketing Institute	Association
NORMEX	ISO+HACCP+Handling and transportation security	Universidad del Valle de Mexico Instituto Politecnico Nacional CANACINTRA	Private/Association
TNC	Safety, quality and environmental.	TESCO	Private

[2] Enforcement is done by granting certifications that allow suppliers to meet the standard to sustain relationship with the global clients.

BRC	Safety for retailers, brand owners, and manufacturing facilities doing business in or with the European Union	British Retail Consortium	Private
QMI	Safety, quality, critical control, organic, environmental, occupational safety, information security, risk management	QMI SAI Global	Private
ISO 22000	ISO Food safety management systems	ISO	Private

Table 2.- Organisation type for promotion, enforcement and certification of international private standards for agriculture and food industries in Mexico

		Supporting local and national institutions/organisations for diffusing standards					
Main certifying bodies	**Certifications for agriculture and food industries**	State	Public	Private	Academia	Association	R&D Centre
Normex (Private)	ISO Food safety management systems Handling and transportation security HACCP			√	√		√
SENASICA (Public/State)	GAP GMP HACCP Microbiological control systems	√	√				√
MCS (State/Decentralised)	GAP GMP SQF GlobalGAP	√	√	√		√	√
PrimusLab (Private)	GAP GMP Organic			√		√	
SCS (Private)	GAP GMP HACCP GlobalGap TNC BRC			√		√	
QMI SAI Global (Private)	GAP GMP HACCP GlobalGap TNC BRC C-TPAT			√			

5.4. National institutional capacity building

5.4.1. The case of Melones Internacionales (Melones)

Melones is one of the largest fresh vegetable grower/shipper in Mexico, with traditions going back to 1932. The company had partnered with Dole, and Chiquita, but its expansion led in 2007 to create its own new brand “Plane Jane”; with more than 100 hectares of greenhouse production, around 10 million fresh produce boxes exported year-around, and with plans of growth over the following years.

In 2001, Melones’ CEO discovered the existence of Food Safety measures. For the first time when he visited what at Melones’ CEO’s best of knowledge was the first Mexican firm certified in food safety,

Agros S.A. from Queretaro, Mexico, owned by the first president of AMPHI (Mexican greenhouse growers association, now called AMHPAC: Asociacion Mexicana de Horticultura Protegida). Melones' CEO engaged in food safety seminars in the United States, bringing new practices to his greenhouses.

Melones was interested in implementing food safety standards related to Good Manufacturing Practices (GMP), set by Codex, adapted by United States Food and Drug Administration (FDA), later by Scientific Certification Systems (SCS) for the specific needs of the agricultural export industry, and finally by Melones during its implementation process. Standards are predefined, but adapted to the sectoral, local and firms' needs.

> *"Once I visited Mario Steta's greenhouses facilities in Queretaro, I came to know of the existence of food safety, something that was completely new, the topic did not even existed 6 years ago" (Canelos-Guillen, A, Interview, Dec. 11, 2007)*

Melones' CEO and Scientific Certification Systems (SCS) got in touch through Agros; later it initiated the implementation and certification process, at the same (2003) time growers from Sinaloa became aware of the food safety standards thanks to personal communications between Melones' CEO and growers from Sinaloa. These growers called the attention from another organisation, the 'Confederation of Agricultural Associations of the State of Sinaloa' (CAADES: Confederacion de Asociaciones Agricolas del Estado de Sinaloa) who later became an important driving force for the international food safety standards boom in Sinaloa, and with higher impact than the one achieved by the AMPHI across Mexico (Demerutis, E, Interview, Nov. 20, 2007).

> *"All the security and safety measures were communicated immediately, see.. we are all relatives and we all know each other, CAADES is in the middle of any crucial issue touching our members, as soon as safety and security measures were required by the US, and growers from Sinaloa were requiring support the association created institutional mechanisms for representation and training of our members" (Demerutis, E, Interview, Nov. 20, 2007)*

Melones' CEO foresaw the implications of such standards and made explicit his motivations: social responsibility and economical benefit. For the latter, he warned the industry of the possibilities of the United States using food safety issues as non-tariff barrier and tried to convince them that a certification can became a deterrent for such unilateral actions and sanctions. Furthermore the implementation of food safety standards would improve their competitive position with other buyers.

Implementation and final compliance by Melones faced difficulties for a combination of factors: industry unawareness, lack of supporting resources for implementation, and regulatory stringency relative to the current practices, as it can be read in the following sentences with Melones' CEO

> *"When I tried to implement the Good Manufacturing Practices, I realised how difficult it was personally and for the whole company, since we were swimming against the tide in terms of culture and practices of people working on the fields… there were no institutions or companies with previous experiences in implementing or supporting the process in the region, in fact it is only three years ago when you could start listening about food safety here in Sinaloa, whilst we have been certified for almost six years" (Canelos-Guillen, A, Interview, Dec. 11, 2007)*

Practical knowledge for implementation was not present at the time; therefore, it had to be created by trial and error process. Firms took the lead in creating and modifying managerial and organisational structures and hiring personnel; all these were against current operational practices and culture. Since these were standards not required by US buyers, incentives were not yet clear, as implied in from the following statement.

> *"We need restrooms, we need to disinfect our hands, the handbook says we should proceed differently, and so on, hence we were facing unnecessary costs, more resources were needed, such as people in charge of implementation, a new department in the organisation, and all coming with associated costs" (Canelos-Guillen, A, Interview, Dec. 11, 2007)*

Elaborating the operations and food safety handbook required the involvement of new people responsible of food safety standards compliance and certification. The CEO declares that compliance, rather than being a "voluntary regulatory burden" is an investment in creating the necessary resources and systems by trial and error, requiring intense learning processes, knowledge accumulation and record keeping (codifying knowledge).

Unfortunately, Melones also suffered negative spillover effects, when their responsible expert on the implementation process for compliance and certification left to join PrimusLabs Mexico with a CEO, the SCS's main competitor in Mexico. PrimusLabs invested strongly as a result of the growing interest of the agriculture and food industry for safety standards.

> *"I hired two persons to help our company in the implementation process. I invested in one of them, we learnt together, we introduced many changes in the company for two years, and when she was fully skilled a CEO from PrimusLabs Mexico took her with him as a Pirate… it was very hard for the company to see her go, but I did not have the capacity to make a better offer than the one made by PrimusLabs, which was getting ready for the radical change that the industry was still to see" (Canelos-Guillen, A, Interview, Dec. 11, 2007)*

Social relations and networks played important roles not just for information flows, but for resource and knowledge creation. It is through social networks, associations, private certifying bodies and industry that visions, strategies, information, knowledge and resources flowed to comply with international private food safety standards.

Five organisations (Agros, AMPHI, Melones, SCS and CAADES) played important roles in encouraging and communicating the industry about the needs of getting certified; however, assisting and allocating resources for implementation was not easy. First Agros in 1999 became the leading firm in implementing food safety certification and was being benchmarked for further attempts to build up food safety measures at firm level, opening up their doors to visitors interested in knowing about the crafts of safety measures. AMPHI by promoting the use of greenhouse production, and by promoting the organic production systems and the use of bioregulators, and by organising an annual conference for members with state of the art information on food safety. Melones using their social ties and spillover effects promoted and sustained a high demand for safety certifications in the Sinaloa region. SCS by providing training and certifications. Finally CAADES understands the need of supporting smaller farmers in the implementation process, contacting and delivering training, hiring consultants, and negotiating better deals for their members (more than 10,000) in the purchase and adaptation of food safety infrastructure and technologies for their Good Agricultural and Manufacturing Practices (GAP and GMP).

> *"We were also responsible to build up safety and security for the crossborder operations of our TROCADERO, moreover we were involved with the Mexican and US governments in negotiation and investments for improving the cross border operations of the Nogales Port of entry (Mariposa) between Mexico and the US, we were making sure our members would not only needed to meet more regulations, but that benefits were to be derived from them" (Demerutis, E, Interview, Nov. 20, 2007)*

Although enforcement was being mainly done by markets, narrowing the possibilities of closing deals with clients in the US and around the globe if food safety standards were not met, it was the local/national public-private collaboration between Melones and its industry networks, CAADES and AMPHI what triggered a legitimating process; this was driven by the ideal of having a common front against the risk of

foreign markets using non-tariff barriers against Mexican growers, and having tools to negotiate in any international dispute.

> *"The issue is that, if one single tomato is infected or not safe it is not longer a subnational region who gets identified and banned from international trade, but it is the whole country" (Canelos-Guillen, A, Interview, Dec. 11, 2007)*

5.4.2. The case of Mexico Calidad Suprema (MCS)

Mexico Calidad Suprema (MCS) is a decentralised multi-governmental institution created to develop, promote, support and certify international food quality and safety standards across the Mexican food industry. In 2002, MCS was put in place with the aim of creating and promoting quality standards across food industry in Mexico. MCS co-evolved with the demand for higher quality assurance by internal markets, and with demand of food safety and good agricultural practices by the US, European, Canadian and Japanese buyers. Access to those markets becomes an incentive for Mexican growers/shippers to certify in MCS.

MCS consolidated a great deal of international private standards into a simplified certification system. This was to reduce the regulatory complexity associated with the new regulatory regime, which means to comply with a growing number of international standards. Although creating a new certification seal, MCS adapted already existing international private standards and especially the more stringent required by the main international markets for Mexican fresh produce.

However, initial phases of diffusion required more than just making the industry aware of the need for compliance, resources were required to make the industry aware, for promoting standards, implementation, and certification.

The MCS organisation is State-owned, therefore, their concern for achieving compliance goes beyond profit generation and the objective is reaching all the agriculture and food industry in Mexico, and even abroad. For this purpose, a growing amount of resources were allocated for creating a suitable institution/organisation, for promotion, training and consulting services at low costs for the entire international supply chain; 50% is paid by the firm despite their location (inside or outside Mexico) and 50% is covered by the Mexican Government.

Because financial, technological and knowledge resources were scarce, MCS engaged in public-private institutional collaboration to access each type of resource in assisting the industry. All sort of institutions and organisations regardless their organisation type to reach (promotion and resources allocation) the firms were involved: associations, research centres, consultation bodies, provincial and local governments, federal agencies, financing institutions, network of growers and producers, other private international certifying bodies, so on.

MCS needed recognition from international certifying bodies, as well as international institutions and organisations. Some agreements were crucial to legitimise MCS in the international context; such were the cases of Wal-Mart procurement department who accepts that international food safety standards are in place when the company shows the MCS certification, the same happened with GlobalGap, The Japan Ministry of Agriculture, and in progress is SQF. Nevertheless, enforcement and sanctions under a voluntary scheme, is only left to the markets.

In summary, the Mexican fresh produce industry and public institutions acknowledge the need to have a common understanding and front for any risk of accusation of contamination of fresh produce, such as sound cases of Avocado, Tomatoes, Chilli, Strawberries. However, a source of competitive advantage is the early and stringent implementation of international private standards along global supply chains.

Industry associations, national institutions and national research centres collaborate in acquiring and exploiting knowledge by means of trial and error process through development, training, managing and codifying complexity. This is facilitated by benchmarking practices, by observation of other facilities, and human resources mobility. Public-private collaboration was necessary as well to achieve legitimacy of the adapted standards for the sectoral and local conditions.

6. Conclusion

The growing use of global private standards feared to take away governance power from national regulatory institutions, particularly from the developing countries with weaker regulational institutions. There were no clear understandings as to what type of role can the national institution play in the new context. In this paper, successful non traditional agrifood export products from two Latin American countries—Mexico and Chile—were examined to see how the role transformed as the industry became globally integrated. The Chilean case looked such transformation from historical perspective by comparing the cases in the 1980s and the 2000s. The Mexican case looked at from the perspectives of Private (Melones) and Public (MCS) institutions dealing with global private standards.

The cases of standards in Mexican vegetable and Chilean salmon farming industry demonstrate the changing nature of role of national institutions. The table below illustrates the regulatory function of each case by terms defined in Kaplinky and Morris (2000). We can see changes in role of national institutions as the response to increase in the use of private and non-private standards in these two countries, particularly by enhancing the executive role. The conventional role of national institutions—legislative, executive and judicial—is transformed and being carried out by different mixed of entities in collaboration. To put it more specifically, we identified following general trends: first, in legislative function, global private standards align the regulatory institutions in developing countries through identifying the trajectory of standards while national regulatory institutions concentrate their efforts in adoption, second, local implementation of standards had increasingly became diverse and complex due to the local and sectoral specificity which requires private-public collaboration; third, while power of enforcement and sanction became less of the role for national institutions in developing countries but of global market while certifying and guarantee became important new role.

TABLE: Summary of four cases

Actors	Legislative (Transferring)		Executive (Transforming)		Judicial (Monitoring)	
	Setting	Adopting (Adapting)	Promoting Encouraging Information Communication	Allocating resources	Enforcing Sanctioning	Legitimating
Case of sanitary and quality standards in the 1980s						
Sello de Calidad						
Industry Association (Association of Salmon Producers in Chile now SalmonChile)		√	√			
Semi private institution (Fundacion Chile)		√	√			
PAC/OPS						
Undersecretary of Fishery		√	√			√
National Fishery Service		√	√	√		√
Case of environmental standards in the 2000s						
APL						
Industry Association (SalmonChile)		√	√	√		

Public institutions (CONAMA, SISS, SNS)			√	√	√ (partially)	
Public–Private consultation body (National council for cleaner production)		√	√	√		√
Independent Public Standard Institution (INN)		√	√	√		√
Regional government			√	√		
SIGEs						
Industry Association (SalmonChile)		√	√	√		
Private Sector (Wal-Mart)						√
Association of Canadian, Canadian and Chilean salmon producers (SOTA)						√
Case of Melones Internacionales						
Private (Melones)		√	√			
Industry Association (AMPHI, CAADES)			√	√		
Private (Agros)			√			
International certification body (SCS)		√	√	√		√
Case of Mexico Calidad Suprema (MCS)						
MCS		√	√	√		√
Government (Minister of Economics, Minister of Agriculture, and Mexican International Trade Bank)		√		√		√
Foreign Government (Japan Minister of Agriculture)						√
Private (NORMEX, PrimusLabs.com, Wal-Mart)		√	√			√
Industry Associations (CAADES, AMPHI, FPAA)			√	√		√
Public –Private consultation body (ANCE, COSAFI)		√		√		

In legislative function, the national institutions and private sectors are increasingly taking the role of 'adaptors' of global private standards. It is possible to say that there is no plain transfer of standards to national/local level but it increasingly required adaptation process to simplify to fit complex realities in the local and sectoral context.

In executive function, it became evident that private-public collaboration taking the important part in transforming the role from 'promotion of standards' to 'assistance' to implementation diffusion of standards and regulation. The implementation process demonstrated the complex way in which the local regulatory body interlinked with the global standards.

In judicial function, the market forces taking over the role of "sanctioning" from national institutions; on the other hand, national institutions increased function of 'legitimating' through certifying and guaranteeing the good agricultural and manufacturing practices in the global market and before international trade disputes commissions.

The cases demonstrate the co-evolution of regulatory system in Mexico and Chile for agrifood sector as the sectors become globally integrated. The role of national institutions in this co-evolutionary process resembles that of Gerschenkron (1962) which stated that government play role to fill the missing gaps created by the market forces as the developing countries go through transformation. As the cases demonstrated, he also believed the ways in which government fill the gaps are not the same due to the differences in preconditions: each situation requires to plot the distinctive path. However, this does not mean that things needs to be entirely new—the countries can follow the existing path of the predecessor, namely the global standards. In other words, the government can play in introducing "innovative feature", such as institutional innovation through collaborating the private sector to cope with the new environment which makes the what it appears to be the "top-down" governance of global standards more a "bottom up" process since the process of institutional innovation for complying the global standards involves series of economic action and reaction as well as learning and institutional development. The future

challenges for the national institutions in developing countries would be to take higher involvement in defining standards at international level. Moreover, it would become increasingly important to maintain the role of impartial guarantor while sustaining close collaboration with the private sector.

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